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Claim Listing

1–20. (cancelled)

21. (new) An apparatus for feeding a treating agent onto a moving surface comprising:

a feed apparatus having at least one feed chamber, the feed chamber having at least one inlet opening for the treating agent and at least one outlet opening for the treating agent;

at least one nozzle plate having portions forming a plurality of holes which communicate with the outlet opening of said at least one feed chamber;

wherein the plurality of holes are arranged to form downwards moving jets of treating agent;

at least one downwards sloping inclined surface positioned to receive the downwards moving jets of treating agent from the plurality of holes in the nozzle plate, the at least one inclined surface forming a downwards sloping flow path on which an even laminar treating agent flow may be formed, the at least one inclined surface having portions forming a lowermost edge; and

a cylindrical surface forming an applicator rod, the cylinder surface mounted for rotation and positioned such that the a lowermost edge of the at least one inclined surface rests against the rotating cylindrical surface, wherein the rotating cylindrical surface is in contact with the moving surface.

22. (new) An apparatus for feeding a treating agent onto a moving surface having a defined direction of movement and defining a width, the apparatus comprising:

a feed apparatus having at least one feed chamber, the feed chamber having at least one inlet opening for the treating agent and at least one outlet opening for the treating agent;

at least one nozzle plate having portions forming a plurality of holes which communicate with the outlet opening of said at least one feed chamber, wherein the plurality of holes are arranged to form downwards moving jets of treating agent;

a first downwards sloping inclined surface positioned to receive the downwards moving jets of treating agent from the plurality of holes in the nozzle plate, the the first inclined surface forming a downwards sloping flow path on which an even laminar treating agent flow may be formed, the first inclined surface having portions forming a lowermost edge;

a second inclined surface positioned so the trailing edge of the first inclined surface rests on the second inclined surface so the second inclined surface can receive a laminar treating agent flow from the first inclined surface, the second inclined surface mounted for motion transverse to the defined direction of motion of the moving surface, wherein the the second inclined surface has a length transverse to the direction of movement of the moving surface which is at least 1.5 times greater than the width of the moving surface; and

actuating members connected to the second inclined surface and arranged to move the second inclined surface in the direction transverse to the direction of movement of the moving surface, so that a portion of the second inclined plate which is to one side of the moving surface can be cleaned.

23. (new) An apparatus for feeding a treating agent onto a moving surface comprising:

a feed apparatus having at least one feed chamber, the feed chamber having at least one inlet opening for the treating agent and at least one outlet opening for the treating agent;

at least one nozzle plate having portions forming a plurality of holes which communicate with the outlet opening of said at least one feed chamber, wherein the plurality of holes are arranged to form downwards moving jets of treating agent;

a first downwards sloping inclined surface positioned to receive the downwards moving jets of treating agent from the plurality of holes in the nozzle plate, the first inclined surface forming a downwards sloping flow path on which an even laminar treating agent flow may be formed, the first inclined surface having portions forming a lowermost edge;

a second downwards sloping inclined surface positioned so the trailing edge of the first inclined surface rests on the second inclined surface so the second inclined surface can receive a laminar treating agent flow from the first inclined surface, the second downwards sloping inclined surface having a lower end positioned space from or touching the moving surface; and

a wall extending upwardly from the lower end of the second downwards sloping inclined surface forming a closed space, the closed space connected to a source of vacuum, the wall having a plurality of holes positioned behind the second downwards sloping inclined surface to suck an air cushion carried by the moving surface into the closed space.

24. (new) An apparatus for feeding a treating agent onto a moving surface comprising:

a feed apparatus having at least one feed chamber, the feed chamber having at least one inlet opening for the treating agent and at least one outlet opening for the treating agent;

at least one nozzle plate having portions forming a plurality of holes which communicate with the outlet opening of said at least one feed chamber, wherein the plurality of holes are arranged to form downwards moving jets of treating agent;

a first downwards sloping inclined surface, having a first incline direction, the first inclined surface positioned to receive the treating agent directly from the holes in the nozzle plate, the first inclined surface forming a downwards sloping flow path on which an even laminar treating agent flow may be formed, the first inclined surface having portions forming a lowermost edge; and

a second inclined surface having an incline direction opposite to the first incline direction, the trailing edge of the first inclined surface being spaced from the second inclined surface so the second inclined surface can receive a laminar flow of treating agent from the first inclined surface, the second inclined surface having a trailing edge which extends to a distance below the feed apparatus and an upper end which extends to the level of or above the lowermost edge of the first inclined surface, and wherein the lower end of the second inclined plate rests against the moving surface.

25. (new) A method for feeding a treating agent onto a paper or board web comprising the steps of:

feeding the treating agent on to a paper or board web using a feed apparatus having a feed chamber having an inlet opening and an outlet opening, and a nozzle plate which is provided with a plurality of holes which communicate with the outlet opening;

forming a plurality of jets by passing the treating agent passing from the outlet opening of the feed chamber through the plurality of holes in the nozzle plate;

catching the plurality of jets on an inclined surface which forms a downwards sloping flow path, the jets interacting to form an even laminar downward flow of treating agent; and

moving a paper or board web beneath the inclined surface so that the paper or board web is coated with the even laminar downward flow of treating agent.

26. (new) The method of claim 25, wherein the plurality of jets fall freely in the air as a curtain onto the inclined surface which forms a downwards sloping flow path.

27. (new) The method of claim 25, wherein the plurality of jets passes directly from the holes of said nozzle plate onto the inclined surface which forms a downwards sloping flow path.

28. (new) The method of claim 25, further comprising forming a curtain from the even laminar downward flow of treating agent which freely falls in air from a lower edge of the inclined surface to the paper or board web which is spaced below the inclined surface.

29. (new) The method of claim 25, further comprising transferring the even laminar downward flow of treating agent at a point of contact between the inclined surface and the paper or board web.

30. (new) The method of claim 25, wherein the inclined surface is inclined in the direction in which the paper or board web is moved, wherein a gap narrowing in the direction of movement of the moving surface is formed between the inclined surface and the paper or board web.

31. (new) The method of claim 25, wherein the inclined surface is inclined against the direction of movement of the paper or board web.

32. (new) The method of claim 25, wherein the inclined surface slopes down in the form of a broken line and which has several portions of different inclinations.